AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ for a receiver ~~(RC)~~ of a multi-carrier communication system ~~(MC-SYS)~~, for evaluating and correcting frequency deviations (f_{off}) which are introduced into multi-carrier symbols when being transmitted between a transmitter multi-carrier filter bank ~~(4; IFFT)~~ and receiver multi-carrier filter bank ~~(8; FFT)~~, comprising:

a) a selector ~~(SEL)~~ adapted to receive a set of N complex data symbols output by the receiver multi-carrier filter bank ~~(8; FFT)~~ and N channel coefficients (C_{est}) corresponding to each sub-carrier as estimated by a channel estimator ~~(12)~~ of said receiver (RC), where N is the number of used sub-carriers in the multi-carrier system ~~(MC-SYS)~~, and adapted to select, on the basis of the N channel coefficients (C_{est}), a number M of sub-carriers corresponding to the M channel coefficients (C_{est}) having the largest absolute values, where $M \leq N$;

b) an evaluator ~~(EVAL)~~ adapted to determine, on the basis of the M selected sub-carriers and their corresponding M channel coefficients (C_{est}), an estimate ($f_{off,est}$) of the frequency deviation (f_{off}) introduced into the multi-carrier symbols; and

c) a corrector ~~(CORR1; CORR2)~~ for correcting the frequency deviation introduced into the multi-carrier symbols on the basis of the determined frequency deviation estimate ($f_{off,est}$).

2. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1,

wherein

said selector ~~(SEL)~~ adaptively adjusts the number M at adjustment time intervals including at least one multi-carrier symbol duration.

3. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1,

wherein

said corrector ~~(CORR1; CORR2)~~ includes a first correction unit (CORR1) arranged upstream the receiver multi-carrier filter bank ~~(8)~~ and adapted to rotate each received multi-carrier symbol with a different phase shift depending on the frequency deviation estimate ($f_{off,cst}$) and the sample index (k) within the multi-carrier symbol.

4. (Previously Presented) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1 ~~or 3~~, wherein

said corrector ~~(CORR1; CORR2)~~ includes a second correction unit ~~(CORR2)~~ arranged downstream of the receiver multi-carrier filter bank and adapted to rotate all data symbols output by the receiver multi-carrier filter bank with the same phase shift depending on the frequency deviation estimate ($f_{off,est}$).

5. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 4,

wherein

said second correction unit ~~(CORR2)~~ performs a correction of the same set of N data symbols which are subjected to the selection by said selector ~~(SEL)~~.

6. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1,

wherein

said corrector ~~(CORR1; CORR2)~~ includes:

a first correction unit (CORR1) arranged upstream the receiver multi-carrier filter bank ~~(8)~~ and adapted to rotate each received multi-carrier symbol with a different phase shift depending on the frequency deviation estimate ($f_{off,est}$) and the sample index (k) within the multi-carrier symbol; and

a second correction unit ~~(CORR2)~~ arranged downstream of the receiver multi-carrier filter bank ~~(8)~~ and adapted to rotate all data symbols output by the multi-carrier filter bank ~~(8)~~ with the same phase shift depending on the frequency deviation estimate ($f_{off,est}$).

7. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1,

wherein

said evaluator ~~(EVAL)~~ is adapted to carry out a decision directed evaluation for said M sub-carriers.

8. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1, wherein

said evaluator ~~(EVAL)~~ is adapted to carry out a pilot carrier aided evaluation for said M sub-carriers.

9. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1, wherein

said evaluator ~~(EVAL)~~ is adapted to carry out a combination of a decision directed evaluation and a pilot carrier aided evaluation for said M subcarriers.

10. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 1,

wherein

the number of selected sub-carriers is M=N/4 to M=N/3 where N is the number of used subcarriers.

11. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ for a receiver ~~(RC)~~ of a multi-carrier communication system ~~(MC-SYS)~~, for evaluating and correcting frequency deviations (f_{off}) which are introduced into multi-carrier symbols when being transmitted between a transmitter multi-carrier filter bank ~~(4; IFFT)~~ and receiver multi-carrier filter bank ~~(8; FFT)~~, comprising:

a) an evaluator ~~(EVAL)~~ adapted to receive a set of N complex data symbols output by the receiver multi-carrier filter bank ~~(8; FFT)~~ and N channel coefficients (C_{est}) corresponding to each sub-carrier as estimated by a channel estimator ~~(12)~~ of said receiver (RC), where N is the number of used sub-carriers in the multi-carrier system (MCSYS), and to determine, on the basis of N sub-carriers and their corresponding N channel coefficients (C_{est}), an estimate ($f_{off,cst}$) of the frequency deviation (f_{off}) introduced into the multi-carrier symbols, where N is the number of sub-carriers used in the transmitter;

b) a corrector ~~(CORR1; CORR2)~~ for correcting the frequency deviation introduced into the multi-carrier symbols on the basis of the determined frequency deviation estimate ($f_{off,est}$); and

c) wherein said corrector ~~(CORR1; CORR2)~~ comprises a corrector unit ~~(CORR2)~~ arranged downstream of the receiver multi-carrier filter bank ~~(8)~~ and adapted to rotate all data symbols output by the receiver multi-carrier filter bank ~~(8)~~ with the same phase shift depending on the frequency deviation estimate ($f_{off,cst}$).

12. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 11,

wherein

said corrector ~~(CORR1; CORR2)~~ further includes a correction unit (CORR1) arranged upstream the receiver multi-carrier filter bank ~~(8)~~ and adapted to rotate each received multi-carrier symbol with a different phase shift depending on the frequency deviation estimate ($f_{off,est}$) and the sample index (k) within the multi-carrier symbol.

13. (Currently Amended) ~~Frequency~~A frequency tracking device ~~(FTD)~~ according to claim 11, further comprising

a selector ~~(SEL)~~ adapted to receive a set of N complex data symbols output by the receiver multi-carrier filter bank ~~(8; FFT)~~ and N channel coefficients (C_{est}) corresponding to each sub-carrier as estimated by a channel estimator ~~(12)~~ of said receiver (RC), where N is the number of used sub-carriers in the multi-carrier system (MCSYS), and adapted to select, on the basis of the N channel coefficients (C_{est}), a number M of sub-carriers corresponding to the M channel coefficients (C_{est}) having the largest absolute values, where $M \leq N$; and wherein

said evaluator ~~(EVAL)~~ is adapted to determine, on the basis of the M selected sub-carriers and their corresponding M channel coefficients (C_{est}), an estimate ($f_{off,act}$) of the frequency deviation (f_{off}) introduced into the multi-carrier symbols.

14. (Previously Presented) Receiver ~~(RC)~~ of a multi-carrier communication system ~~(MC-SYS)~~, comprising reception means (RM) for receiving multi-carrier symbols transmitted from a transmitter (TR) via a transmission channel, a receiver multi-carrier filter bank for converting said multi-carrier symbols into complex data symbols, a data symbol sink for receiving said data symbols and a frequency tracking device ~~(FTD)~~ in accordance with claim 1~~one or more of claims 1 - 10 or one or more of claims 11 - 13~~.

15. (Currently Amended) A multi-carrier communication system ~~(MC-SYS)~~, comprising at least one transmitter (TR) including a data symbol source ~~(1-3)~~ generating complex data symbols, a transmitter multi-carrier filter bank ~~(4)~~ for generating multi-carrier symbols from said complex data symbols and a transmission means ~~(TR)~~ for transmitting said multi-carrier symbols onto a transmission channel ~~(6)~~, and at least one receiver ~~(RC)~~ in accordance with claim 14.

16. (Currently Amended) A method for evaluating and correcting frequency deviations (f_{off}) which are introduced into multi-carrier symbols when being transmitted between a transmitter multi-carrier filter bank ~~(4; IFFT)~~ and receiver multi-carrier filter bank ~~(8; FFT)~~, comprising the steps of:

a) determining ~~(S1; S2)~~, in a receiver ~~(RC)~~ of a multi-carrier communication system ~~(MC-SYS)~~, a set of N complex data symbols output by the receiver multi-carrier filter bank ~~(8; FFT)~~ and N channel coefficients (C_{est}) corresponding to each sub-carrier as estimated by a channel estimator ~~(12)~~ of said receiver ~~(RC)~~, where N is the number of used sub-carriers in the multi-carrier system ~~(MCSYS)~~; and

b) selecting ~~(S3)~~, on the basis of the N channel coefficients (C_{est}), a number M of sub-carriers corresponding to the M channel coefficients (C_{est}) having the largest absolute values, where $M \leq N$;

c) determining ~~(S4)~~, on the basis of the M selected sub-carriers and their corresponding M channel coefficients (C_{est}), an estimate ($f_{off,est}$) of the frequency deviation (f_{off}) introduced into the multi-carrier symbols; and

d) correcting ~~(S5)~~ the frequency deviation introduced into the multi-carrier symbols on the basis of the determined frequency deviation estimate ($f_{off,est}$).

17. (Currently Amended) A method according to claim 16,

wherein

said correction step ~~(S5)~~ includes a first correction ~~(CORR1)~~ carried out upstream a receiver multi-carrier filter bank ~~(8)~~ in which each received multi-carrier symbol is rotated with a different phase shift depending on the frequency deviation estimate ($f_{off,est}$) and the sample index (k) within the multi-carrier symbol.

18. (Currently Amended) A method according to claim 16,

wherein

said correction step ~~(S5)~~ includes a second correction ~~(CORR2)~~ carried out downstream a receiver multi-carrier filter bank ~~(8)~~ in which all data symbols output by the receiver multi-carrier filter bank ~~(8)~~ are corrected with the same phase shift depending on the frequency deviation estimate ($f_{off,est}$).

19. (Currently Amended) A method according to claim 16,

wherein

said correction step ~~(S4)~~ includes:

a first correction ~~(CORR1)~~ carried out upstream a receiver multi-carrier filter bank ~~(8)~~ in which each received multi-carrier symbol is rotated with a different phase shift depending on the frequency deviation estimate ($f_{off,est}$) and the sample index (k) within the multi-carrier symbol; and

a second correction ~~(CORR2)~~ carried out downstream a receiver multi-carrier filter bank ~~(8)~~ in which all data symbols output by the receiver multi-carrier filter bank ~~(8)~~ are corrected with the same phase shift depending on the frequency deviation estimate ($f_{off,est}$).

20. (Currently Amended) A method for evaluating and correcting frequency deviations (f_{off}) which are introduced into multi-carrier symbols when being transmitted

between a transmitter multi-carrier filter bank ~~(4; IFFT)~~ and receiver multi-carrier filter bank ~~(8; FFT)~~, comprising the steps of:

a) determining ~~(S1', S2')~~, in a receiver ~~(RC)~~ of a multi-carrier communication system ~~(MC-SYS)~~, a set of N complex data symbols output by the receiver multi-carrier filter bank ~~(8; FFT)~~ and N channel coefficients (C_{est}) corresponding to each sub-carrier as estimated by a channel estimator ~~(12)~~ of said receiver ~~(RC)~~, where N is the number of used sub-carriers in the multi-carrier system ~~(MCSYS)~~, and

b) determining ~~(S3'; S4')~~, on the basis of N sub-carriers and their corresponding N channel coefficients (C_{est}), an estimate ($f_{off,est}$) of the frequency deviation (f_{off}) introduced into the multi-carrier symbols, where N is the number of sub-carriers used in the transmitter; and

c) correcting ~~(S5')~~ the frequency deviation (f_{off}) introduced into the multi-carrier symbols on the basis of the determined frequency deviation estimate ($f_{off,est}$); and

~~e)~~d) wherein said correction step ~~(S3')~~ comprises a correction ~~(CORR2)~~ carried out downstream of the receiver multi-carrier filter bank ~~(8)~~ in which all data symbols output by the receiver multi-carrier filter bank ~~(8)~~ are rotated with the same phase shift depending on the frequency deviation estimate ($f_{off,est}$).

21. (Currently Amended) A method according to claim 20,
wherein
said correction step ~~(S5')~~ further includes a correction step ~~(CORR1)~~ carried out upstream the receiver multi-carrier filter bank ~~(8)~~ in which each received multi-carrier symbol is rotated with a different phase shift depending on the frequency deviation estimate ($f_{off,est}$) and the sample index (k) within the multi-carrier symbol.

22. (Currently Amended) A method according to claim 20,
further including the steps of.

selecting ~~(S2')~~, on the basis of the N channel coefficients (C_{est}), a number M of sub-carriers corresponding to the M channel coefficients (C_{est}) having the largest absolute values, where $M \leq N$; and wherein

determining ~~(S4')~~, on the basis of the M selected sub-carriers and their corresponding M channel coefficients (C_{est}), an estimate ($f_{off,est}$) of the frequency deviation (f_{off}) introduced into the multi-carrier symbols.

PLEASE ADD NEW CLAIMS AS FOLLOWS:

23. {NEW} A receiver of a multi-carrier communication system, comprising reception means for receiving multi-carrier symbols transmitted from a transmitter via a transmission channel, a receiver multi-carrier filter bank for converting said multi-carrier symbols into complex data symbols, a data symbol sink for receiving said data symbols and a frequency tracking device in accordance with claim 11.

24. {NEW} A multi-carrier communication system, comprising at least one transmitter (TR) including a data symbol source generating complex data symbols, a transmitter multi-carrier filter bank for generating multi-carrier symbols from said complex data symbols and a transmission means for transmitting said multi-carrier symbols onto a transmission channel, and at least one receiver in accordance with claim 23.

25. (New) A frequency tracking device according to claim 1, wherein the number of selected sub-carriers M is determined using the N channel coefficients estimated by the channel estimator, a noise bandwidth for a loop gain in a phase locked of the corrector; a noise variance of additive noise; and, a variance of phase error.

26. (New) The frequency tracking device according to claim 1, wherein the number of selected sub-carriers M is determined using

$$\sigma^2_{\phi_{err}} = \frac{\sigma^2_{n'}}{2} B_n(a) \frac{1}{M^2} \sum_{m=0}^{M-1} \frac{1}{|C_m(i)|^2 |d_m(i)|^2}$$

wherein

$C_m(i)$ are the channel coefficients estimated by the channel estimator;

$d_m(i)$ is transmitted data, mapped on to subcarrier m;

$B_n(a)$ is a noise bandwidth for a loop gain a in a PLL tracking scheme of the corrector;

$\sigma^2_{n'}$ is a noise variance of additive noise; and,

$\sigma^2_{\varphi err}$ is a variance of the phase error.

27. (New) The frequency tracking device according to claim 1, wherein the number of selected sub-carriers M is determined using

$$\sigma^2_{\phi_{err}} = \frac{\sigma^2_{n'}}{2} B_n(a) \frac{1}{\sum_{m=1}^{M} |d_m(i)|^2 |C_m(i)|^2}$$

wherein

$C_m(i)$ are the channel coefficients estimated by the channel estimator;

$d_m(i)$ is transmitted data, mapped on to subcarrier m;

$B_n(a)$ is a noise bandwidth for a loop gain a in a PLL tracking scheme of the corrector;

$\sigma^2_{n'}$ is a noise variance of additive noise; and,

$\sigma^2_{\varphi err}$ is a variance of the phase error.